



## Resistance to COVID-19 Vaccine in Medical Students

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### Dear Editor,

During the spread of coronavirus disease 2019 (COVID-19), the number of casualties increased, and strict measures such as closing schools and universities were taken to curb the spread of the disease in various parts of the world. Many students were taking virtual classes for the first time and had not experienced such a pandemic, which led to significant fear and stress in them (1). On the other hand, being in an environment contaminated with COVID-19 has caused widespread psychological disorders such as anxiety, depression, stress, and sleep problems in many students (2). Medical and paramedical students, in particular, experienced significant stress during the outbreak due to academic stress, exposure to infection and contamination, networking, and lack of sleep, which affected their mental health (3). During the COVID-19 pandemic, medical students who underwent internships in hospitals were at higher risk for infection because they were in COVID-19-contaminated environments. This led to increased stress and anxiety for these students compared to other students. On the other hand, many medical students were afraid of contracting COVID-19 in the hospital setting and transmitting it to their family and relatives as an asymptomatic carrier (4).

The lack of an effective vaccine or an effective treatment alternative for the treatment of COVID-19 has become a difficult challenge in all countries worldwide. Although several solutions were tried in this regard, including home quarantine, social distancing, masking, and controlling the prevalence of COVID-19, the global COVID-19 pandemic cannot be expected to significantly decrease until an effective and efficient vaccine is developed against this new virus (5). Finally, after much effort, the FDA licensed the Pfizer-BioNTech vaccine on December 11 and the modern one on December 18. According to studies, these two vaccines are 95% effective against COVID-19 for people over 16 years of age (6).

However, public vaccination cannot be guaranteed even after public access to safe vaccines because we are

facing resistance to vaccination (7). Resistance to various vaccines has been widely observed throughout medical history and is not a new phenomenon. Considering that previous research has shown that adaptation to vaccines is variable and contradictory, achieving public acceptance requires extensive training in the safety and efficacy of different vaccines (8). In fact, it should be noted that all vaccines challenge the immune system and increase inflammatory markers within a few hours of vaccination, as well as in people with severe allergies. Vaccination causes unusual reactions, thus the medical record of individuals should be examined before starting universal vaccination (9).

To prevent the spread of COVID-19, high-risk groups such as hospital staff and medical students should be given priority over the COVID-19 vaccine. However, medical students may not be accepted for the COVID-19 vaccine for various reasons (10). In a similar study, Saied et al (8) examined the resistance of medical students to the COVID-19 vaccine and found that 90.5% of these students understood the importance of vaccination and 46% were skeptical. Most students' concerns were about the side effects (96.8%) and inefficiency (92.3) of the vaccine. In another study, Jain et al (10) evaluated the resistance of Indian medical students to the COVID-19 vaccine and reported that 10.6% of students were hesitant to receive the COVID-19 vaccine. Concerns about the safety and effectiveness of the vaccine, lack of awareness, and low trust in the government were among the factors that led to their resistance. Likewise, Chijoke et al (7) studied the confidence of medical students in hepatitis B and COVID-19 vaccines. The results revealed that 39% and 14.7% of students were worried about receiving the COVID-19 and hepatitis B vaccines, respectively. Moreover, 69.9% of medical students were skeptical about the safety and efficacy levels of the COVID-19 vaccine.

Eighteen months after the global outbreak of COVID-19, the deadly virus continued to mutate and became more potent, and no specific date can be set for the post-corona period. To this end, people must trust their governments

and participate in the global vaccination process based on the scientific results obtained on effective vaccines. Given that several domestic vaccines are also undergoing clinical trials, we can expect the mass production of the domestic vaccine for COVID-19. To increase the awareness and trust of the Iranian people about the safety and efficacy of domestic vaccines, workshops and training should be held to reduce public skepticism about vaccination.

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